# Receptivity to Tobacco Advertising and Promotions Among Young Adolescents as a Predictor of Established Smoking in Young Adulthood

Elizabeth A. Gilpin, MS, Martha M. White, MS, Karen Messer, PhD, and John P. Pierce, PhD

There has been long-standing scrutiny of tobacco industry advertising and promotions targeted toward children and adolescents. <sup>1–11</sup> Historical data have related increases in smoking initiation among adolescents to the onset of new and novel cigarette advertising campaigns, with particular attention focused on Joe Camel, R.J. Reynolds's cartoon character. <sup>12–19</sup>

In addition, 9 relatively short-term longitudinal studies of adolescents with limited smoking experience consistently showed that exposure to tobacco advertising and promotions is predictive of future adolescent smoking behavior.<sup>20</sup> Particularly predictive was the availability of promotional items (e.g., clothing and gear with brand logos), a marketing strategy aggressively pursued through such programs as Camel Cash and Marlboro Miles. However, to our knowledge, no longitudinal study has addressed the longer-term association between young adolescents' receptivity to tobacco advertising and promotions and their later smoking in young adulthood.

Despite repeated tobacco industry denials, 21-23 internal documents made public as a result of lawsuits associated with the 1998 Master Settlement Agreement (MSA; the agreement between the attorneys general of 46 states and the major tobacco companies to recoup the costs to US states for treating smoking-related diseases) clearly indicate that the industry had focused advertising and promotions on young people.24-28 One industry market research report noted that young smokers will become brand loyal if they smoke a brand 200 times (10 packs) and emphasized that retail-value-added incentives (e.g., promotional items) can encourage the purchase of the required number of packs.<sup>29</sup>

On the basis of the evidence that cigarette advertising and promotions influenced smoking initiation, the MSA restricted such activities. Specifically, it prohibited billboard advertising

Objectives. We investigated whether receptivity to tobacco advertising and promotions during young adolescence predicts young adult smoking 6 years later.

Methods. Two longitudinal cohorts of adolescents drawn from the 1993 and 1996 versions of the California Tobacco Surveys were followed 3 and 6 years later. At baseline, adolescents were aged 12 to 15 years and were not established smokers. The outcome measure was established smoking at final follow-up. Receptivity to cigarette advertising and promotions was included in a multivariate

Results. The rate of established smoking at follow-up was significantly greater among members of the 1993 through 1999 cohort (21.0%) than among members of the 1996 through 2002 cohort (15.6%). However, in both cohorts, having a favorite cigarette advertisement and owning or being willing to use a tobacco promotional item showed nearly identical adjusted odds of future adult smoking (1.46 and 1.84, respectively).

logistic regression analysis along with demographic and other variables.

Conclusions. Despite the success of tobacco control efforts in reducing youth smoking, tobacco marketing remains a potent influence on whether young adolescents become established smokers in young adulthood (18–21 years of age). (Am J Public Health. 2007;97:1489–1495. doi:10.2105/AJPH.2005.070359)

and the use of cartoon characters in tobacco advertising and limited the distribution of promotional items to adult-only venues. Furthermore, most promotional items could no longer carry a brand logo or name.<sup>24</sup>

Many state and national antitobacco efforts were initiated in the mid- to late 1990s. Thus, during that decade, young adolescents were exposed to 2 different environments: rampant tobacco advertising and promotions in the early 1990s and the curtailment of these practices along with increased tobacco control efforts in the late 1990s.

Cross-sectional population surveys conducted in California in the 1990s indicated that adolescents' receptivity to advertising and promotions was much higher in 1996 than it was in 1999. In addition, results of these surveys showed that among adolescents who had never smoked, levels of several important risk factors for future smoking (e.g., having best friends who smoked and being susceptible to smoking) were higher in 1996 than in 1993. Thus, these 1996 data from California suggested that adolescent smoking

rates were poised to increase. Instead, subsequent cross-sectional surveys documented major declines in adolescent smoking behavior in 1999 and again in 2002.<sup>32</sup>

We examined the effects of receptivity to tobacco advertising and promotions in 2 longitudinal cohorts of young adolescents followed over a period of 6 years. Members of the first cohort, from the 1993 California Tobacco Survey (CTS), were followed in 1996<sup>33,34</sup> and again as young adults in 1999. Members of the second cohort, from the 1996 CTS, were followed in 1999<sup>31,35–38</sup> and again as young adults in 2002.

#### **METHODS**

#### **Data Sources**

Baseline data for the 3-wave cohorts assessed here were derived from the 1993 and 1996 versions of the CTS, a large cross-sectional, random-digit-dialing survey of the California population conducted every 3 years as part of the evaluation of California's tobacco control program.<sup>39</sup> Briefly, samples of

telephone area codes were drawn from each of 18 regions in California. In each survey, an adult aged 18 years or older provided demographic information for all household members. If there were adolescents (aged 12 to 17 years) in the household, permission was obtained from the adult, and each adolescent was scheduled for an extended interview. Several days later, interviews about the adolescents' attitudes and behaviors related to tobacco use were conducted. Further details on the CTS are available elsewhere. 40

At the time of the baseline surveys, there were no plans or funding for the follow-up surveys. The adult who provided information on household members was told that the household might be contacted again and asked for the family's present address and the names and telephone numbers of up to 3 people who would be likely to know the family's whereabouts. When funding was obtained, an advance letter explaining the follow-up survey and indicating that the household would be called again shortly was sent to the address of record. Information provided at baseline, online directory assistance, the national change-of-address database, and national credit reference services were used to trace respondents who were not at the same telephone number.

The same contact and tracing techniques were used for the final follow-ups. Parents who were successfully located at the final follow-up often had to provide the telephone numbers of young adult members of their household (between 18 and 21 years of age) who no longer lived at home. Because respondents were all at least 18 years of age at that point, parental permission was no longer required.

As a result of funding limitations, the 1999 follow-up of adolescents first interviewed in 1996 was restricted to those who were aged 12 to 15 years at baseline. Furthermore, because we were examining respondents who became established smokers in young adulthood, those who were already established smokers at baseline were omitted from the study population. The final sample included 1734 respondents from the 1993 through 1999 cohort and 1983 respondents from the 1996 through 2002 cohort. Table 1 shows survey details, including follow-up rates, for

TABLE 1—Sample Selection and Follow-Up: Longitudinal Youth California Tobacco Surveys, 1993–2002

	1993- 1999 Cohort	1996- 2002 Cohort
	COHOIT	COHOIL
Baseline		
No. of households	30 910	39 674
No. of adolescents (aged	6892	8 778
12-17 years)		
No. of completed interviews	5 531	6 252
Cooperation rate, %	80.3	71.2
Initial follow-up		
No. of eligible respondents <sup>a</sup>	5 531	4 288
No. of completed interviews	3 3 7 6	2 825
Cooperation rate, %	61.5	65.9
Final follow-up		
No. of eligible respondents	3 3 7 6	2 825
No. of completed interviews	2 445	2 034
Cooperation rate, %	72.4	72.0
Study population		
No. of eligible participants	3 687	4 139
No. of respondents with final	1 734	1 983
follow-up interview	1 / 34	1 303
Cooperation rate, %	47.0	47.9

<sup>&</sup>lt;sup>a</sup>In the 1993-1999 cohort, all adolescents aged 12 to 17 years were eligible for follow-up. In the 1996-2002 cohort, only those aged 12 to 15 years in 1996 were eligible for follow-up.

both 3-wave cohorts. (Additional technical details on the cohorts are available on request. Also available is a comparison of key variables at baseline for the full sample interviewed in 1993, those successfully followed in 1996, and those followed in both 1996 and 1999.)

#### **Sample Weighting**

Initial person-level base weights accounted for household selection probabilities at baseline, and census totals were used to further adjust these weights to account for differences in response levels in the adolescent baseline samples. For each longitudinal sample, the final baseline weights were then adjusted to account for loss to follow-up. Probability of response at follow-up was adjusted for demographic characteristics of the parent (race, age,

education, sampling region of residence), the gender and age of the adolescent, number of biological parents in the household, the smoking status of the parent, and whether a home smoking ban was in place (information on weighting procedures is available from the authors on request). For each sample, a series of replicate weights were computed so that jack-knifed estimates of variance properly accounted for the additional variability because of the sampling design and weighting scheme.

#### **Smoking Behavior Definitions**

At each interview, adolescents were categorized as committed never smokers, susceptible never smokers, experimenters, established smokers, or current established smokers. A committed never smoker was someone who answered no to "Have you ever smoked a cigarette?" and "Have you ever tried or experimented with smoking, even a few puffs?" Never smokers had to answer 3 additional questions in a manner suggesting a strong commitment not to smoke.

In 1993, they had to have answered no to "Do you think you will try a cigarette soon?" With a change in the response categories in 1996 and 1999, they had to have answered definitely not to the same question. They also had to answer definitely not to the questions "If one of your best friends were to offer you a cigarette, would you smoke it?" and "At any time during the next year do you think you will smoke a cigarette?" Those who answered probably not, probably yes, or definitely yes to any of these 3 questions in 1996 and 1999 (or answered yes to the try-soon question used in 1993) were considered susceptible never smokers. Other researchers have validated our work<sup>42</sup> demonstrating that future smoking rates are lower among committed never smokers than among susceptible never smokers.  $^{6,43}$ 

Experimenters answered yes to either the smoked-a-whole-cigarette or the tried—experimented question but answered no to "Have you smoked at least 100 cigarettes in your life?" Those answering yes to the 100-cigarette questions were considered established smokers. At the final interview (in either 1999 or 2002, depending on the cohort), established smokers were asked the standard adult smoking prevalence question "Do you now smoke every day, some days, or not at all?"

<sup>&</sup>lt;sup>b</sup>Adolescents aged 12 to 15 years who were not established smokers.

Those reporting that they smoked every day or some days were considered *current established smokers*. Those answering every day were also defined as *daily smokers*.

## Receptivity to Tobacco Advertising and Promotions

The measure we used in a previous study for the index of receptivity to tobacco advertising and promotions in the 1993 through 1996 longitudinal sample of California adolescents<sup>33</sup> has subsequently been validated as predictive of future smoking in other longitudinal samples. 44-46 The highest level of receptivity was defined as having or being prepared to use a tobacco promotional item. Adolescents responding affirmatively to either of 2 survey items-"Some tobacco companies provide promotional items to the public that you can buy or receive for free. Have you ever bought or received for free any product which promotes a tobacco brand or was distributed by a tobacco company?" and "Do you think that you would ever use a tobacco industry promotional item, such as a T-shirt?"-were categorized as highly receptive.

To characterize a minimal level of receptivity among the remaining respondents, we asked the following: "Think back to the cigarette advertisements you have recently seen on billboards or in magazines. What brand of cigarettes was advertised the most?" Adolescents who did not name a brand were considered minimally receptive. To define intermediate levels of receptivity, we used responses to the question "What is the name of the cigarette brand of your favorite cigarette advertisement?" Respondents who failed to name a brand in response to this question but who identified the name of a brand as most advertised were classified as having low receptivity to tobacco advertising and promotions. Adolescents who named a brand in response to this question were classified as moderately receptive. Because few of the respondents showed minimal receptivity, the low and minimal groups were combined in our analyses.

#### **Other Covariates**

In addition to standard demographic characteristics (gender, age, and race/ethnicity), we included school performance in our analyses. Adolescents were asked "How do you do in

school: much better than average, better than average, average, or below average?" Because relatively few adolescents reported below average performance, this group was combined with the group reporting average performance.

Respondents were asked "Do any of your parents, stepparents, or guardians now smoke cigarettes?" and "Do you have any older brothers or sisters who smoke cigarettes?" Those offering an affirmative response to either question were classified as being exposed to family members who smoke. To determine exposure among peers, we asked adolescents "About how many best friends do you have who are male?" and "Of your best friends who are male, how many of them smoke?" The same 2 questions were asked about female best friends. Adolescents who indicated that any of their best male or female friends smoked were classified as being exposed to peer smoking. We coded adolescents as being exposed to (1) neither family nor peer smokers, (2) either family or peer smokers, or (3) both family and peer smokers.

#### **Statistical Analyses**

A jackknife variance estimation procedure<sup>41</sup> from the SUDAAN version 8.0. (Research Triangle Institute, Research Triangle Park, NC) statistical package was used in conducting all statistical tests and computing all variance estimates. We calculated 95% confidence intervals for percentages and for adjusted odds ratios from logistic regression analyses.

Preliminary logistic regression analyses included demographic characteristics, school performance, smoking status, exposure to family and peer smoking, receptivity index score, and interactions between smoking status and receptivity and between exposure to peer and family smoking and receptivity. No interactions were statistically significant; thus, the results reported here are for main effects only.

#### **RESULTS**

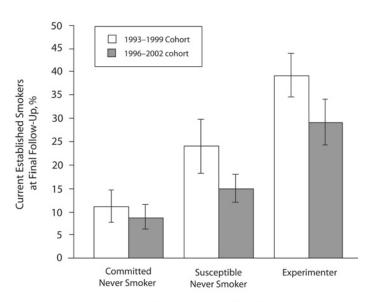
Twenty-one percent  $(\pm 3.6\%)$  of the members of the 1993 through 1999 cohort were classified as current established smokers at the final follow-up, but only 15.6%  $(\pm 1.9\%)$  of the 1996 through 2002 cohort attained that status. Figure 1 shows the percentages of respondents in each smoking status group at baseline who

were classified as current established smokers at the final follow-up. As expected, progression to current established smoking depended on smoking experience at baseline. With the exception of committed never smokers, rates for each baseline smoking status group were significantly lower for the 1996 through 2002 co-hort than for the 1993 through 1999 cohort.

Table 2 shows the logistic regression results for each cohort. The odds ratio associated with the intercept was lower in the 1996 through 2002 cohort, reflecting the lower rate of current established smoking in this cohort. In both cohorts, men were more likely to be classified as current established smokers as young adults than were women. Baseline age was not significantly related to smoking status at follow-up. Hispanics and African Americans were less likely than non-Hispanic Whites to be classified as current established smokers at follow-up. In the 1996 through 2002 cohort but not in the 1993 through 1999 cohort, better school performance at baseline was significantly (inversely) associated with status as a current established smoker in young adulthood.

The percentage of adolescents exposed to family and peer smokers was much higher in the 1996 through 2002 cohort than in the 1993 through 1999 cohort. In each cohort, exposure to both family and peer smokers in young adolescence (between 12 and 15 years of age) was positively associated with status as a current established smoker in young adulthood. Exposure to either family or peer smokers was significant in the 1996 through 2002 cohort but was only marginally significant in the 1993 through 1999 cohort (P < .059). Although many more members of the 1996 through 2002 cohort than the 1993 through 1999 cohort were classified as susceptible never smokers at baseline, the multivariate analysis confirmed a relatively consistent relationship between baseline smoking experience and status as a current established smoker 6 years later.

Levels of receptivity to tobacco advertising and promotions at baseline were similar in the 2 cohorts, and the effects of receptivity on future smoking were the same. Possessing or being willing to use a tobacco promotional item increased the adjusted odds of being a future established smoker by a factor of 1.84, and having a favorite advertisement increased



**Smoking Status at Baseline** 

Note. For smoking behavior definititons, see "Methods" section.

FIGURE 1—Percentages of respondents in each baseline smoking status category who were current established smokers as young adults (aged 18–21 years): California Tobacco Surveys with Longitudinal Follow-Up, 1993–2002.

the adjusted odds by a factor of 1.46. Additional analyses focusing on daily smokers at follow-up (11.8% of 1993–1999 cohort members and 8.0% of 1996–2002 cohort members) showed similar and slightly stronger results, with an adjusted odds ratio exceeding 2.0 for possessing or being willing to use a promotional item and an adjusted odds ratio of approximately 1.6 for having a favorite advertisement.

Figure 2 shows the percentages of respondents from each cohort at each level of receptivity at baseline who were classified as current established smokers at follow-up. The shaded portions of the bars indicate the proportions of the respondents in each group who were daily smokers. In both cohorts, the rate of current established smoking increased with higher levels of receptivity. The lower rates for the 1996 through 2002 cohort again confirmed the lower logistic regression intercept.

#### **DISCUSSION**

Previous relatively short-term longitudinal research<sup>20</sup> has shown that adolescents'

receptivity to tobacco advertising and promotions is associated with their transition toward smoking; however, the present study is the first to show a relationship between receptivity during early adolescence and status as a current established smoker 6 years later as a young adult. Despite differences in the percentages of respondents in the 2 cohorts who were current established smokers as young adults, the distribution of receptivity at baseline and its effect on future smoking were the same in these cohorts.

Our results suggest that although the MSA may have resulted in reductions in adolescents' receptivity to tobacco advertising and promotions during the late 1990s, such receptivity had not diminished as of 1996. The members of the 1996 through 2002 cohort were aged 13 to 16 years in 1997, when public pressure on R.J. Reynolds led to discontinuation of the cartoon character Joe Camel, and some of the older adolescents in this cohort may have been influenced by the earlier promarketing environment when they were younger. In contrast, the members of the 1993 through 1999 cohort were aged 16 to 19

years in 1997, and some potential later initiators might have been influenced not to smoke by the MSA restrictions or other factors.

As mentioned earlier, a number of other factors could have acted to prevent adolescents in the 1996 through 2002 cohort from becoming established smokers as young adults. In 1996, for example, California stepped up enforcement of laws prohibiting tobacco sales to young people.<sup>47</sup> Furthermore, smoking was banned in public areas and in workplaces in 1995 (and this ban was extended to bars and clubs in 1998), which may have amplified population antismoking norms. Cigarette prices increased after the 1998 MSA (by approximately \$0.70 per pack), and a new California excise tax (of \$0.50 per pack) went into effect on January 1, 1999. Previous research suggests that cigarette prices influence young people's smoking behavior, 48-50 mostly with respect to the transition from experimentation to established smoking.<sup>51,52</sup>

Also, the American Legacy Foundation's national "Truth" antitobacco media campaign, aimed at young people and funded through the MSA, has been shown to have led to a decline in youth smoking nationwide<sup>53</sup> (with the decline apparently being greater in California than in other states<sup>32</sup>). The efforts just described may have had more of an influence on younger adolescents during the late 1990s than on those already approaching adulthood at that point.

In any event, the tobacco industry continued to increase its advertising and promotions budget during the late 1990s and early 2000s, from \$5.9 billion in 1996 to \$8.8 billion in 1999 and to \$12.5 billion in 2002 (these figures are adjusted to the 2002 Consumer Price Index).54 In 2002, changes were made in Federal Trade Commission reporting categories potentially involving promotional items,54 and thus it is not possible to track changes before and after the MSA in the amount the tobacco industry spent on promotional items designed to appeal to young people (although outdoor and transit advertising expenditures have dropped dramatically). Even in the post-MSA era, however, the tobacco industry advertises in magazines with high youth readership<sup>55</sup> and continues to flood convenience stores with its advertising and promotions. 56,57 Nearly 75% of

TABLE 2—Adjusted Odds of Being an Established Smoker at Follow-Up: Longitudinal Youth California Tobacco Surveys, 1993–2002

	1993-1999 Cohort (n = 1734)		1996-2002 Cohort (n = 1983)	
	Sample, % (95% CI)	Adjusted OR (95% CI)	Sample, % (95% CI)	Adjusted OR (95% CI)
Intercept		0.41 (0.24, 0.72)		0.20 (0.09, 0.42
Gender				
Female	48.5 (46.0, 51.0)	1.00	47.0 (44.5, 49.5)	1.00
Male	51.5 (49.0, 54.0)	1.55 (1.10, 2.18)	53.0 (50.5, 55.5)	1.59 (1.14, 2.21
Age, y				
12-13	54.5 (51.7, 57.3)	1.00	54.1 (52.0, 56.2)	1.00
14-15	45.5 (42.7, 48.3)	0.80 (0.58, 1.12)	45.9 (43.8, 48.0)	1.07 (0.78, 1.47
Race/ethnicity				
Non-Hispanic White	51.2 (40.8, 61.6)	1.00	51.7 (49.6, 53.8)	1.00
Hispanic	30.4 (24.0, 36.8)	0.53 (0.34, 0.84)	29.6 (27.7, 31.5)	0.47 (0.30, 0.74
African American	7.9 (4.6, 11.2)	0.23 (0.06, 0.90)	5.1 (3.9, 6.3)	0.39 (0.17, 0.85
Asian/Pacific Islander/other	10.6 (8.3, 12.9)	0.99 (0.60, 1.63)	13.6 (11.9, 15.3)	0.73 (0.44, 1.20
Self-reported school performance				
Average or below	41.7 (37.4, 46.0)	1.00	32.9 (29.9, 35.9)	1.00
Better than average	36.6 (33.0, 40.2)	0.72 (0.49, 1.05)	38.8 (36.8, 40.8)	0.65 (0.45, 0.93
Much better than average	21.7 (19.2, 24.2)	0.69 (0.36, 1.29)	28.4 (25.8, 31.0)	0.49 (0.32, 0.76
Family and peer smokers				
Neither family nor peers	41.3 (36.2, 46.4)	1.00	30.6 (28.5, 32.7)	1.00
Either family or peers	39.7 (36.9, 42.5)	1.35 (0.99, 1.85)	47.4 (44.7, 50.1)	1.66 (1.02, 2.71
Both family and peers	19.0 (14.7, 23.3)	1.78 (1.13, 2.81)	32.0 (29.5, 34.5)	1.90 (1.15, 3.15
Smoking experience <sup>a</sup>				
Experimenter	25.9 (23.0, 28.8)	1.00	19.9 (18.1, 21.7)	1.00
Susceptible never smoker	19.4 (16.9, 21.9)	0.56 (0.37, 0.83)	42.8 (39.8, 45.8)	0.54 (0.39, 0.76
Committed never smoker	54.7 (50.7, 58.7)	0.26 (0.17, 0.41)	37.3 (34.4, 40.2)	0.36 (0.22, 0.58
Receptivity level				
Minimal or low (does not have favorite advertisement)	31.7 (28.9, 34.6)	1.00	32.0 (29.4, 34.6)	1.00
Moderate (has favorite advertisement)	45.2 (42.4, 48.0)	1.46 (1.10, 1.94)	43.2 (41.0, 45.4)	1.46 (1.02, 2.07
High (has or is willing to use a tobacco promotional item)	23.1 (19.8, 26.4)	1.84 (1.15, 2.94)	24.8 (22.7, 26.9)	1.84 (1.28, 2.63

Note. CI = confidence interval; OR = odds ratio. All percentages are weighted.

<sup>a</sup>For description of measurements of smoking experience and definitions, see "Methods" section.

adolescents shop in such stores at least once a week,<sup>58</sup> so the potential for young people to be exposed to tobacco advertising is still present, despite the MSA restrictions.

The present analyses showed no significant interaction between young adolescents' smoking experience and their receptivity to tobacco advertising and promotions, suggesting that the effects of tobacco advertising and promotions were relatively uniform across all 3 levels of smoking experience assessed here.

In addition to their influence on committed never smokers in terms of susceptibility to smoking, advertising and promotions might influence susceptible never smokers to experiment and perhaps even persuade experimenters to become established smokers. Failure to complete the transition at any stage terminates the smoking uptake process, eventually resulting in fewer adult smokers.

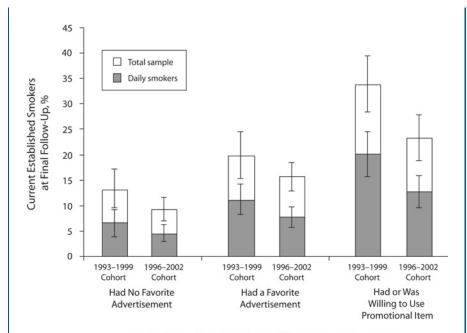
According to our results, Hispanic and African American adolescents were apparently

less likely than non-Hispanic Whites to be current established smokers in young adulthood (Table 2). Young African Americans in California had exhibited declines in smoking rates as early as 1993,<sup>59</sup> and lower smoking rates among African American adolescents than among non-Hispanic White adolescents are also evident nationally.<sup>60</sup> Moreover, it has been shown that smoking prevalence rates are lower among Hispanics than among non-Hispanic Whites, mainly owing to the relatively low rates of smoking among female Hispanics,<sup>60</sup> particularly those at low levels of acculturation.<sup>61,62</sup>

The longitudinal nature of our study is an important strength in that the predisposing factor (receptivity to tobacco advertising and promotions) was present before the outcome event occurred, a necessary criterion for causality. However, as is the case in all such studies, not all of the respondents were followed successfully. Sample weights can compensate somewhat for differential (nonrandom) loss to follow-up, but loss of respondents who were perhaps more likely to be young adult smokers would have tended to bias our results toward the null. Thus, the present findings are probably conservative.

Another limitation of this study is that smoking status was self-reported. If the respondents were reluctant to admit to smoking, this would result in failure to identify outcomes or in misclassification of smoking status at baseline. However, self-report data are reasonably accurate, 63 and biochemical validation is neither practical nor likely to be valid in young adolescents 64 who smoke intermittently. Future longitudinal surveys will be necessary to revalidate the measure assessing receptivity to tobacco advertising and promotions in cohorts whose members were children and preadolescents in the years following the MSA.

Young adolescents who exhibit moderate to high levels of receptivity to tobacco advertising and promotions are apparently more likely to be current established smokers as young adults. The fact that we did not find an interaction between receptivity and baseline smoking experience suggests that the effect of receptivity is operative at all early levels of the smoking uptake process. Fewer members of the later cohort were established smokers at



Level of Receptivity to Tobacco Advertising and Promotions

FIGURE 2—Percentages of respondents who were current established smokers as young adults (aged 18-21 years), by baseline level of receptivity to tobacco advertising and promotions: California Tobacco Surveys with Longitudinal Follow-Up, 1993-2002.

the final follow-up, despite their higher levels of risk as young adolescents; thus, in all likelihood, the increased antitobacco environment to which these cohort members were exposed successfully counteracted their initial receptivity. Given the recent large increases in tobacco marketing expenditures, it can be expected that the tobacco industry will continue to adapt to the current environment and devise new and novel approaches to entice young people to smoke.

#### **About the Authors**

The authors are with the Cancer Prevention and Control Program, Moores Cancer Center, University of California, San Diego, La Jolla, Calif.

Requests for reprints should be sent to John P. Pierce, PhD, Cancer Prevention and Control Program, Moores Cancer Center, University of California, San Diego, 3855 Health Sciences Dr #0901, La Jolla, CA 92093-0901 (e-mail: jppierce@ucsd.edu).

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#### Contributors

E.A. Gilpin and J.P. Pierce proposed the research question and designed the study. E.A. Gilpin conducted the analysis. M.M. White managed the data for the study and conducted confirmatory analyses. K. Messer

consulted on statistical analyses. All of the authors were involved in writing the article.

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### **Human Participant Protection**

This research was approved by the institutional review board of the University of California, San Diego. Informed consent was obtained for the surveys in accordance with the guidelines of that board.

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